

## NO2 Analyzer for Miniature Unmanned Aerial Vehicles, Phase I

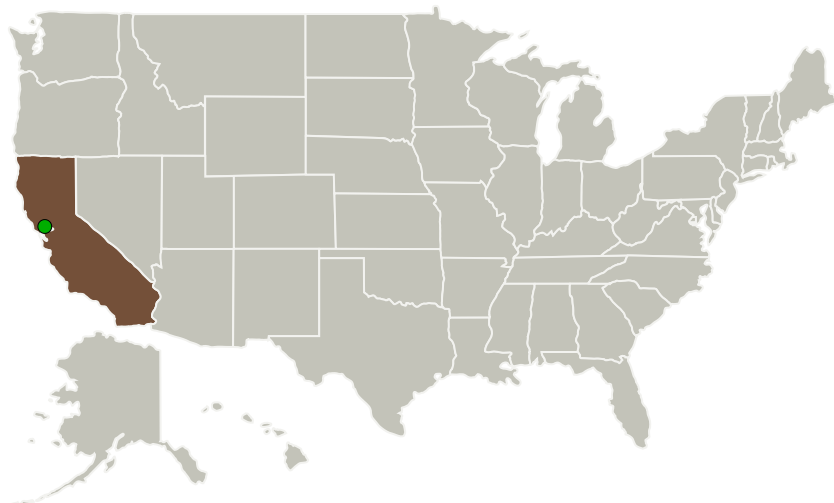
Completed Technology Project (2011 - 2011)



## Project Introduction

In this Small Business Innovative Research (SBIR) effort, Los Gatos Research (LGR) proposes to employ incoherent Cavity Ringdown Spectroscopy (iCRDS) to develop a compact, cost-effective nitrogen dioxide (NO<sub>2</sub>) analyzer for deployment aboard miniature unmanned aerial vehicles (UAVs). This portable instrument will provide rapid (1 Hz), highly accurate (to better than  $\pm 1$  ppbv) quantification of NO<sub>2</sub> with minimal external calibration or consumables gases. Moreover, due to the inherent benefits of iCRDS, the analyzer will be selective, robust, and economical. The resulting instrument will allow researchers in NASA's Earth Science Division to use miniature UAV deployments to complement satellite observations on the Geostationary Coastal and Air Pollution Events (GEO-CAPE) mission. The in-situ data will provide higher spatial resolution and vertical profiling near the highly inhomogeneous NO<sub>2</sub> sources, as well as providing correction factors for GEO-CAPE coastal measurements.

## Primary U.S. Work Locations and Key Partners



NO<sub>2</sub> Analyzer for Miniature Unmanned Aerial Vehicles, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3
Target Destinations	3

## NO2 Analyzer for Miniature Unmanned Aerial Vehicles, Phase I



Completed Technology Project (2011 - 2011)

Organizations Performing Work	Role	Type	Location
Los Gatos Research	Lead Organization	Industry	Mountain View, California
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

## Primary U.S. Work Locations

California

## Project Transitions

**February 2011:** Project Start**September 2011:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/138361>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Los Gatos Research

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Manish Gupta

**Co-Investigator:**

Manish Gupta

# NO2 Analyzer for Miniature Unmanned Aerial Vehicles, Phase I

Completed Technology Project (2011 - 2011)



## Technology Maturity (TRL)

Start: **3**  
Current: **6**  
Estimated End: **6**



## Technology Areas

### Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - └ TX16.1 Safe All Vehicle Access

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System